

ABSTRACT OF THE DISCLOSURE

Novel conjugated diene polymers having good wear resistance, mechanical properties, storage stability, processability and a reduced cold flow are produced by polymerizing a conjugated diene compound with a catalyst of rare earth element compound and reacting the resulting polymer just after the polymerization with at least one compound selected from the group consisting of a halogenated organometallic compound, a halogenated metal compound, an organometallic compound, a heterocumulene compound, a hetero three-membered-ring containing compound, a halogenated isocyano compound, a carboxylic acid, an acid halide, an ester compound, a carbonic ester compound, an acid anhydride and a metal salt of a carboxylic acid as a modifying agent.